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REVIEWER'S REPORT

Manuscript No.: IJAR-53455 Date: 21/08/25

Title: Application of Linear Regression for Predicting Digital Trajectories of Beninese Municipalities

Recommendation:
Accept as it is .....
Accept after minor revision…yes.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		yes		
Techn. Quality		yes		
Clarity		yes		
Significance		yes		

Reviewer Name:Dr.Shaweta Sachdeva **Date:** 21/08/25

Reviewer's Comment for Publication. Accepted with some minor revisions

(*To be published with the manuscript in the journal*)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

Significance

- The study addresses a **timely and relevant issue**: the need for predictive tools to support digital transformation planning in developing countries, specifically **Beninese municipalities**.
- By integrating linear regression within a **Decision Support System (DSS)**, the work offers a **practical foundation** for evidence-based governance and digital strategy formulation.
- The research provides a **baseline framework** for municipal-level predictive modeling, which can be further extended to other contexts and domains.

Strengths

- The analysis uses six years of data across 77 municipalities and 45 indicators, ensuring wide coverage and reliability.
- The linear regression framework is clearly described, making the approach **transparent, interpretable, and replicable** for decision-makers.

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- Highlighting heterogeneity across municipalities strengthens the practical utility, showing that a one-size-fits-all strategy is inadequate.
- Demonstrates **technical feasibility and computational efficiency**, making real-time analysis and regular updates possible.
- The manuscript openly discusses both **strengths and limitations** (e.g., modest R^2 at the aggregate level, but better municipality-specific results).

Key Insights

- **Moderate Predictive Power Overall** ($R^2 = 0.037$) but **substantially higher accuracy** at municipality level (up to $R^2 = 0.938$), showing the importance of localized modeling.
- The identified **4.2% annual growth rate** in municipal digital development is an encouraging trend for policy and planning.
- Even with moderate accuracy, the framework can guide **short-term planning and monitoring**, helping identify underperforming municipalities for intervention.
- **Future Potential** – Clear pathways are suggested for **enhancing models** (non-linear methods, machine learning, integration of external variables), making the study a strong **stepping stone for future research**.

Detailed Reviewer's Report

- Consider shortening sentences for better readability and adding a brief statement on practical implications.

- Some parts of the introduction repeat ideas (e.g., need for predictive planning and data-driven governance). Streamline to avoid redundancy.

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- Ensure uniform formatting (some references use initials inconsistently, e.g., ITU (2021) vs. United Nations (2020)).

- Minor grammatical issues (e.g., spacing errors such as "77 municipalitiesincluded" on line 98) should be corrected.

- Figure 1 and Table 1 could benefit from clearer captions that briefly explain their purpose, not just labels.

- Clarify why mean imputation was preferred over more advanced methods (e.g., regression imputation or multiple imputation) to reassure about bias reduction.

- Provide a short justification for the chosen validation windows (temporal and cross-sectional).

- While R^2 and RMSE are given, including adjusted R^2 in the results table would improve clarity since it was mentioned as a selection criterion.

- Some municipality predictions (e.g., Kandi, Banikoara) are discussed. Expanding a little on why certain municipalities had stronger or weaker model performance would enrich the interpretation.

- The "Business-as-Usual" section could briefly mention potential limitations (e.g., unforeseen shocks such as policy changes or economic downturns).